

**INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY**

**Technical Committee Meeting to Identify Issues Relating to the
Requirements of the Current Transport Regulations and to
Develop Approaches to Guide the Revision of these Requirements**

**IAEA Headquarters, Vienna
6-10 March 2000**

CHAIRMAN'S REPORT

**Reproduced by the IAEA
Vienna, Austria, 2000**

NOTE

The material in this document has been supplied by the authors and has not been edited by the IAEA. The views expressed remain the responsibility of the named authors and do not necessarily reflect those of the government(s) of the designated Member State(s). In particular, neither the IAEA nor any other organization or body sponsoring this meeting can be held responsible for any material reproduced in this document

**INTERNATIONAL ATOMIC ENERGY AGENCY
DIVISION OF RADIATION AND WASTE SAFETY**

**Technical Committee Meeting to Identify Issues Relating to the
Requirements of the Current Transport Regulations and to
Develop Approaches to Guide the Revision of these Requirements**

IAEA Headquarters, Vienna
6-10 March 2000

CHAIRMAN'S REPORT

**Richard R. Rawl
Oak Ridge National Laboratory
Oak Ridge, TN, USA**

Contents

1.	Introduction	1
2.	Purpose of the meeting	2
3.	Working methods	2
4.	Results of the meeting	3
	4.1 Working Group and Writing Group reports	3
	4.2 Recommendations for proposals to amend the Regulations	4
	4.3 Recommendations for guidance material	7
5.	Conclusions	8

Annex I – List of Participants

Annex II – Terms of Reference

Annex III – Opening Remarks – Mr. R.B. Pope

Annex IV – Chairman's Opening Remarks – Mr. R.R. Rawl

Annex V – Agenda

Annex VI – Working Paper 1A, Revision 4, "Details of Provisional Agenda"

Annex VII – Report of Working Group 1 – Contamination
Working Paper No. 19, Rev. 1

Annex VIII – Report of Working Group 2 – Uranium Hexafluoride
Working Papers Nos. 20

Annex IX – Report of Working Group 3 – Various Issues
Working Paper No. 18, Rev. 2

Annex X – Report of the Writing Group
Working Paper No. 17, Rev. 2

**Technical Committee Meeting to Identify Issues Relating to the
Requirements of the Current Transport Regulations and to
Develop Approaches to Guide the Revision of these Requirements**

Report of the Meeting

1. Introduction

The International Atomic Energy Agency is charged in its founding statute with the responsibility to develop standards for the safety of nuclear applications. This responsibility extends to the development of the "Regulations for the Safe Transport of Radioactive Material". Recognizing that the Transport Regulations must be updated in order to remain abreast of the latest radiation protection principles and transportation approaches, the Agency has periodically (usually at 10 year interval) revised the regulations. The most recent revision of the Transport Regulation resulted in their publication in the Safety Standards Series as ST-1 (1996 Edition).

Based on advice from the Transport Safety Standards Advisory Committee (TRANSSAC), the Agency's senior transport safety advisory group, a new revision process which is based on a 2-year cycle has been adopted. This shorter revision process will better synchronize the development and implementation of ST-1 with the revision cycles of the other international organizations responsible for dangerous goods transport safety. The first 2-year revision cycle was recently initiated in March 2000 with a call to Member States and international organizations for proposals to amend the regulations. The first Revision Panel, scheduled for 4-8 September 2000 will consider the submitted proposals and will advise the Agency and TRANSSAC on any recommended amendments to the regulations.

Under the new revision process specific proposals must be received in order for an amendment to the regulations to be considered. The proposals must be specific and provide information concerning the need for the amendment (justification), draft text for ST-1 and draft text for any supporting revisions needed to the "Advisory Material for the Regulations for the Safe Transport of Radioactive Material", ST-2, and "Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material", ST-3.

During the 4 years since the publication of ST-1 several issues have been identified which may require amendments to the regulations in order to facilitate uniform worldwide implementation. Some of these issues involve correction of minor errors while others relate to clarifying the intent of the regulations. The Secretariat has also become aware of two issues which need to be addressed in order for the regulations to provide a complete set of requirements suitable for direct regulatory application.

2. Purpose of the meeting

The Technical Committee Meeting to Identify Issues Relating to the Requirements of the Current Transport Regulations and to Develop Approaches to Guide the Revision of these Requirements (TC-1156) was held during 6-10 March 2000 at the IAEA's Headquarters in Vienna, Austria. The meeting was attended by 49 participants representing 21 Member States and 5 international organizations (see Annex I).

The purpose of the meeting was given in its Terms of Reference (see Annex II) and included providing a forum for:

- discussing major issues relating to the requirements in the Agency's Transport Regulations (ST-1), prior to the submission of proposed revisions; and,
- identifying areas where interim guidance may be needed to support harmonized implementation of ST-1 (1996 Edition) by the target date of 1 January 2001.

The objectives of the meeting were to:

- develop recommendations which can be used by Member States in formulating specific proposals to revise the regulations; and,
- where appropriate, develop draft interim guidance on implementing ST-1 (1996 Edition).

Specific topics which were identified in the Terms of Reference for the meeting to consider included:

- regulatory requirements for contamination on packages and conveyances;
- regulatory requirements for packaging uranium hexafluoride;
- future regulatory text on the Agency's right to interpret its own Transport Regulations (for inclusion in the next edition of the Transport Regulations); and,
- other topics as agreed by Plenary.

A number of issues were put to the meeting in the Working Papers and Information Papers which were assigned to it.

3. Working methods

The meeting was opened by Mr. A.J. González (NSRW) and Mr. R.B. Pope (NSRW). Mr. Pope's opening remarks are provided in Annex III. He then turned the meeting over to the Chairman. The Chairman's opening remarks are provided in Annex IV.

Following discussion in Plenary, the Provisional Agenda (see Annex V) was adopted as the final agenda for the meeting. It was decided to organize the meeting into Working Groups and a Writing Group which would address the assigned topics as follows:

- Working Group 1 – Requirements for contamination (contamination on packages and conveyances; including reviewing, commenting and providing advice on the revised “non-paper” on contamination with the view of the Secretariat issuing such a document in a formal manner by Summer of 2000)
- Working Group 2 – Requirements for uranium hexafluoride packaging
- Working Group 3 – Various topics (which Plenary assigned during its opening session)
- Writing Group – Provisions for the Agency's ability to interpret the Transport Regulations and provisions regarding actions that are needed for instances of non-compliance

The Working Group leaders were authorized to establish Sub-groups within the working groups as needed.

A large number of Working Papers and Information Papers were tabled before and during the meeting. These papers were organized and assigned to the Working and Writing Groups to ensure that each was considered in detail. Working Paper 1A, Revision 4 (see Annex VI) provides the details of which papers were assigned to each group.

Following the presentation of each Working Paper and discussion of the working methods for the meeting, Plenary was adjourned to allow the Working and Writing Groups to undertake the detailed consideration of the issues and working papers before them. Meeting participants assigned themselves to one or more of the groups and the group leaders and secretaries were assigned as follows:

- Working Group 1 – Contamination:
 - Leader – Mr. J. Stewart
 - Secretary – Mr. M. Wangler
- Working Group 2 – Uranium hexafluoride
 - Leader – Mr. K. Kirkhope
 - Secretary – Mr. R. Boyle
- Working Group 3 – Various issues
 - Leader – Mr. H. Sannen
 - Secretary – Mr. R. Lewis
- Writing Group
 - Leader – Mr. C. Young

One short Plenary session was held on Wednesday, 8 March to review the progress and interim results of the Working and Writing Groups. The groups concluded their activities by lunch on Thursday, 9 March. Plenary met on Thursday afternoon and Friday morning and completed its tasks on Friday at 1210 hours.

4. Results of the meeting

The recommendations of the Working and Writing Groups can generally be categorized as follows:

- 1. recommendations which provide information and support proposals for amending ST-1 and its supporting documents (ST-2 and ST-3);** These recommendations must be taken up by a Member State or international organization and developed into formal proposals which can be submitted to the revision process which is currently underway.
- 2. recommendations relating to the development and publication of guidance information;** This information can be used by the IAEA Secretariat in publishing or further developing specific guidance to assist in harmonized implementation of ST-1.

4.1 Working Group and Writing Group reports

The full reports of the Working and Writing Groups are found in Annexes VII through X. Each of the group Leaders and Secretaries did an excellent job of ensuring that the groups fully addressed their topics and reported the results in sufficient detail to allow Plenary to approve the recommendations. The full details of the groups' deliberations can be found in their individual reports in the Annexes.

For ease of reference, the following two sections provide information on the most significant recommendations made by the Technical Committee. The recommendations are organized by Working and Writing Group, however, these recommendations were endorsed by the full Technical Committee and hence are recommendations of the meeting. The recommendations have been extracted from the Group reports and reworded as necessary to reflect their status as recommendations of TC-1156.

4.2 Recommendations for proposals to amend the Regulations and supporting guidance documents (ST-2 and ST-3)

The recommendations in this section relate to amendments which must be made through the revision process or by the Secretariat as minor changes (editorial and errata). In keeping with decisions made by the Agency and TRANSSAC, significant revisions to the Transport Regulations and the supporting guidance documents (ST-2 and ST-3) must be made on the basis of specific proposals submitted to the Revision Panels, typically from Member States or international organizations.

4.2.1 Working Group No. 1 – Contamination

It is recommended that:

4.2.1.1 - for clarity a Member State should propose new text for para. 508 in order to specify whether the values are additive or separate.

4.2.1.2 - wording for a new para. 609.5 and the proposed wording for para. 508.13 in ST-2 was acceptable as written and further recommended that a Member State submit them for revision process.

4.2.1.3 - the text for para.514 (ST-1) should be revised to apply only to unpackaged LSA-I and SCO-I and that a Member State submit a proposal for the revision process.

4.2.2 Working Group No. 2 – Uranium Hexafluoride

It is recommended that:

4.2.2.1 - to address the finding that ST-1 and ST-2 did not adequately present the intent of the UF₆ packaging requirements, the following changes to the next revision of ST-1 and ST-2 should be proposed by a Member State:

(a) ST-1, paragraph 632(a) should be rewritten as follows:

"632(a) the packages are designed to international or national standards other than ISO 7195 provided an equivalent level of safety is maintained;"

(b) ST-1, paragraph 629 should be revised to except packages containing less than 0.1 kg of UF₆ from the requirements of ISO 7195.

(c) ST-2, paragraph 631.1, the second sentence which explains when pressure relief devices could be used should be deleted.

(d) ST-2: a paragraph explaining what is meant by the word “equivalent” used in paragraph 632(a) should be included.

(e) ST-2: the graphical presentation of the packaging provisions for UF₆ (Working Paper No. 20, Annex 1) should be included.

4.2.2.2 - to address the inconsistency of the pressures specified in ISO 7195 and ANSI N14.1, the design pressure values in ST-1 and ST-2 should be revised to the values in ISO 7195. This can be considered as a minor change and the Secretariat should notify the international organizations of this error so that the changes can be implemented in the 2001 editions of their regulations.

4.2.2.3 - to address the difficulty in understanding and applying the new UF₆ packaging regulations, the Secretariat and Member States should review the conclusions detailed

in Working Paper No. 20, Sections 2.4 and 2.6, as well as the issues addressed in Working Paper No. 20, Annex 2, and include them in the next draft of ST-2.

4.2.2.4 - to address the identified need for uniform implementation of the ST-1 provisions, ST-2 should be published as soon as possible as a matter of the highest priority.

4.2.2.5 - the English edition of ST-1 Para 805(a) should be revised to reference paras. **629**-631 instead of 623-631 (this should be handled as a minor change and included in an errata sheet).

4.2.3 Working Group No. 3 – Various topics

It is recommended that:

4.2.3.1 - expert(s) be identified to develop additional guidance on the transport of fissile materials by air, for possible inclusion in a future revision to ST-2, regarding:

- (a) the intent of the evaluation under para. 680
- (b) the safety basis of the evaluation under para. 680
- (c) the practical application of the evaluation under para. 680
- (d) the relationship between the requirement in para. 680(b) and the assumptions for moderator exclusion that may be used for Type IF, AF and Type BF packages under para. 677
- (e) the clarity and sufficiency of existing draft ST-2 guidance on para. 680.

4.2.3.2 – the issues described in Information Paper No. 24 (which include the definition of fissile material and fissile exception values) and the issue of the possible need to include fissile actinides be picked up by a Member State and supported during the next revision cycle for ST-1.

4.2.3.3 - that consumer products be shipped under Schedule 2 (instruments and articles) if the shipment is not otherwise exempt from ST-1 through para. 107 or para. 236. But the provision for not marking radioluminescent timepieces should be extended to all individual consumer products having an activity that does not exceed the activity limit for an exempt consignment given in Table I, Column 5. In compensation for this change, if the activity per consignment exceeds the exempt quantity, the package (not the consumer product) should be marked with “RADIOACTIVE” on the inside of the package and the UN ID no. 2911 on the outside of the package, similar to what is done under Schedule 1. An individual consumer product that exceeds the activity limit for an exempt consignment in Table I, Column 5, is not relieved from the “RADIOACTIVE” marking and is shipped under Schedule 2 (for consumer products with an activity up to the item limit in Schedule 2, Table 2.1). A Member State should introduce and support this approach as a revision to ST-1 during the next regular review cycle.

4.2.3.4 - practical guidance should be given in future (2003) revisions of ST-2, with examples of situations in which using the special arrangement provisions of ST-1 are appropriate. However, this issue is not a pressing one and there is no need for interim guidance before this time.

4.2.3.5 - ST-1 be revised, through the normal revision process, to be consistent with the UN Orange Book’s labeling, marking, and placarding provisions. Further, consultants services should be obtained with the goal of recommending revised ST-1 definitions to be consistent with those in the UN Orange Book. Finally, that the

Secretariat should investigate methods to resolve the issues surrounding the modal organizations' practices on subsidiary risks.

4.2.3.6 – the issues related to an enhanced deep immersion test should be picked up by a Member State and presented (with proper justification and proposed language) during the next normal revision cycle for ST-1.

4.2.3.7 – the Secretariat should work to identify the implementation issues (e.g., grandfathering) that exist relative to introduction of the new 2-year revision cycle and should identify methods to facilitate the more-frequent revisions.

4.2.4 Writing Group

It is recommended that:

4.2.4.1 - text similar to that in Safety Series No. 115 but modified to reflect the single sponsorship of the Agency, should be included in the next edition of the Transport Regulations to address the issue of interpretation of the regulations.

4.2.4.2 - the following text dealing with the issue of non-compliance should be included in the next revision of the Transport Regulations. The location of this text is recommended to be in the "General Provisions" section of the Transport Regulations, following "Special Arrangement".(NOTE: the text that was recommended in 4.2.4.1 above concerning interpretation would then follow the proposed non-compliance text.)

NON-COMPLIANCE

312 bis. In the event of a non-compliance of any applicable requirement of these safety requirements, the consignor shall be informed by

- (a) the carrier if the non-compliance is identified during transport, or**
- (b) the consignee if the non-compliance is identified at receipt.**

312 bis+1. The carrier, consignor or consignee shall, as appropriate:

- (a) investigate the non-compliance and its causes, circumstances and consequences;**
- (b) take appropriate action to remedy the causes and circumstances that led to the non-compliance**
- (c) take appropriate action to prevent a recurrence of similar circumstances that led to the non-compliance**
- (d) communicate to the relevant competent authority(ies) on the causes of the non-compliance and on the corrective or preventive actions taken or to be taken; and**
- (e) take whatever other actions are necessary as required by these safety requirements.**

312 bis+2. The communication of a non-compliance in paras 312 bis and 312 bis+1 to the consignor and relevant competent authority(ies) shall be prompt and it shall be immediate whenever an emergency exposure situation has developed or is developing.

312 bis+3. Failure to take corrective or preventive actions in accordance with national regulations shall be grounds for appropriate action by the relevant competent authority(ies).

312 bis+4. Willful non-compliance of, attempted non-compliance of, or conspiracy to not comply with any of these safety requirements shall be subject to the provisions for such infractions by the appropriate competent authority(ies) or, when applicable, by the relevant consignor.

INTERPRETATION

312 bis+5. No interpretation of these transport safety requirements by any officer or employee of the International Atomic Energy Agency, other than a written interpretation under the authority of the Director General of the Agency and developed in consultation with the Transport Safety Standards Advisory Committee (TRANSSAC), will be binding on the Agency. Any interpretation shall be issued by the Transport Safety Unit of the Agency. The authority to interpret or develop interpretations of these transport safety requirements may be delegated by the Director General of the Agency.

4.3 Recommendations for guidance material

The recommendations in this section relate to the development of guidance or undertaking of activities which do not need to be part of the revision process. There are a number of ways in which the Agency can undertake these activities including, but not limited to, Consultants Service Meetings, Technical Committee Meetings, Coordinated Research Programs and cooperative efforts with Member States.

4.3.1 Working Group No. 1 - Contamination

It is recommended that:

4.3.1.1 - information on contamination be made available and that a graded system for notification of incidents be used.

4.3.1.2 - the "nonpaper" should be rewritten and converted to a paper in accordance with the procedures developed by the Writing Group on Agency interpretation of the Regulations.

4.3.1.3 - the paper on contamination (Working Paper No. 19, Rev. 1, Attachment which is included in Annex VII) be made available to the public through the Agency.

4.3.1.4 - consultant services be obtained to identify appropriate ISO standards for use in transport and potential standards that could be applied to transport.

4.3.1.5 - a new model that considers contamination should be developed.

4.3.2 Working Group No. 2 – Uranium Hexafluoride

It is recommended that:

4.3.2.1 - to improve the understanding of the need for and benefit of the new UF₆ packaging regulations, the Secretariat should publish the final report of the Coordinated Research Program (CRP) on Uranium Hexafluoride as soon as possible.

4.3.3 Working Group No. 3 – Various topics

It is recommended that:

4.3.3.1 – to clarify the issues related to the transport of fissile material by aircraft as soon as possible (before the 2003 planned revision of ST-2) that alternative means to

disseminate timely guidance on the topics described in section 4.2.3.1 above be investigated by the Secretariat.

4.3.3.2 – to help ensure consistent application ST-1, practical guidance on implementing the classification and packaging/shipping requirements for LSA/SCO materials should be developed and made available.

5. Conclusions

The meeting was successful in advancing the resolution of a number of issues related to developing guidance which could enhance the harmonized implementation of ST-1 (1996 Edition) and identifying revisions which should be addressed by the forthcoming Revision Panels. A number of recommendations have been made to the Secretariat for activities which would further develop the specific guidance products and which should be supported as resources allow. Specific recommendations for revision of the Transport Regulations will need to be formally incorporated into proposals, but the basis for several of these were prepared by the meeting. In accordance with the new revision process, Member States or international organizations will generally need to take the lead in making these proposals.

I would like to thank the Secretariat for the excellent manner in which they facilitated the meeting, including the use of electronic media for distribution of working documents prior to the meeting. The support during the meeting was exemplary. Similarly, I would like to thank the Working Group and Writing Group leaders and their secretaries for all of their hard work which was instrumental in making the meeting a success.